

Notice of Allowability

Application No.

10/622,842

Applicant(s)

LAU ET AL.

Examiner

McDieunel Marc

Art Unit

3661

MW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/11/2003.
2. ☒ The allowed claim(s) is/are 1-40.
3. ☒ The drawings filed on 18 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 11/06/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Michael C. Black
MICHAEL C. BLACK
SUPERVISORY PATENT EXAMINER
GROUP 100

Allowable Subject Matter

1. Claims 1-40 are allowed.
2. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fail to teach or fairly suggest with respect to claim 1, a robot for detecting an edge, wherein *a signal receiving device to detect a signal emitted by the infrared emitter after the signal has been reflected; and wherein the driving mechanism slows down after an edge has been detected in response to the feedback received from the signal receiving device, thereby allowing the edge detection element to confirm that there is an edge.* With respect to claim 8, a robot for detecting an edge, wherein *a third edge detection switch that closes in response to the left front end wheel moving at least a predetermined distance downward; a left rear end wheel; a forth edge detection switch that closes in response to the left rear end wheel moving at least a predetermined distance downward; wherein the left and right driving mechanisms move the robot in a direction away from a detected edge based on which of the first, second, third and forth switches close.* With respect to claim 14, the limitation of an edge detection system for preventing a moving robot from traveling off an edge, wherein *an edge detection element to confirm whether the infrared transceiver subsystem actually detected an edge, and to detect an edge not detected by the infrared transceiver subsystem.* With respect to claim 21, a robot for detecting an edge, wherein *a plurality*

of infrared emitters each directed at a different angle with respect to the surface, the emitters alternately emitting signals such that only one of the emitters emits a signal at one time; a signal receiving device to detect signals emitted by the infrared emitters after the signals have been reflected. With respect to claim 25, a robot for detecting an edge wherein, a signal receiving device that can detect a signal emitted from the infrared emitter after the signal has been reflected; and wherein one of the infrared emitter and the signal receiving device is located more adjacent to the second portion of the body than is the other of the infrared emitter and the signal receiving device. With respect to claim 26, a robot for detecting an edge wherein, a plurality of radiation emitters; a signal receiving device that can detect radiation emitted from the emitters after the signals have been reflected; and wherein each emitter is directed at a different angle with respect to the ground when the first portion of the body is located proximate to the ground. With respect to claim 31, a robot for detecting an edge wherein, a signal receiving device that can detect signals emitted from the emitters after the signals have been reflected. With respect to claim 32, a robot for detecting an irregularity wherein, a signal receiving device that can detect a signal emitted from the one radiation emitter after the signal has been reflected off an irregularity; and wherein one of the radiation emitter and the signal receiving device is located more adjacent to the second portion of the body than is the other of the radiation emitter and the signal receiving device. With respect to claim 34, a robot for detecting an edge wherein, a signal receiving device that can detect a signals emitted from the emitters after the signals have been reflected;

wherein only one of the emitters, in both the first and second plurality of emitters, emits a signal at a time to allow the signal receiving device to know which emitter sent a signal whose reflection is detected in combination with the features of the claimed invention.

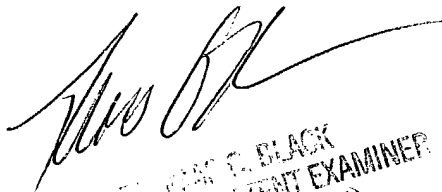
Any inquiry concerning this communication or earlier communications from the examiner should be directed to McDieunel Marc whose telephone number is (703) 305-4478. The examiner can normally be reached on 6:30-5:00 Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

McDieunel Marc

Wednesday, June 16, 2004


THOMAS E. BLACK
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